What is claimed is :

1. An optical signal transmission system including at least one optical signal transmitter and at least one optical signal receiver,

wherein said at least one optical signal transmitter generates at least one optical identifier belonging to and being different in wavelength from at least one main optical signal ;

wherein said at least one optical signal transmitter performs a wavelength-multiplexing of said at least one main optical signal and said at least one optical identifier to transmit at least one wavelength-multiplexed optical signal to said at least one optical signal receiver ;

wherein said at least one optical signal receiver performs a wavelength-demultiplexing of said at least one wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ; and

wherein said at least one optical signal receiver further verifies whether or not a correct transmission route is established, based on said at least optical identifier with reference to at least one set corresponding data, which include a first relationship in correspondence between said at least one main optical signal and said at least one optical identifier.

2. The optical signal transmission system as claimed in claim 1, wherein said at least one optical signal receiver performs said verification by comparing said first relationship included in said at least one set corresponding data to a second relationship between said at least one main optical signal received by said at least one optical signal receiver and said at least one optical identifier detected by said at least one optical signal receiver.

3. The optical signal transmission system as claimed in claim 1, wherein said at least one optical signal receiver performs said verification without subjecting said at least one main optical signal to any photoelectric conversion, and independently from any transmission rate and any format of said at least one main optical signal.

4. The optical signal transmission system as claimed in claim 1, wherein said at least one optical signal transmitter further generates said at least one set corresponding data, and supplies said at least one optical signal receiver with said at least one set corresponding data.

5. The optical signal transmission system as claimed in claim 4, further including a memory being coupled to said optical signal transmitter and said optical signal receiver, and said memory storing said at least one set corresponding data.

6. The optical signal transmission system as claimed in claim 4, further including a data storing station being coupled to said optical signal transmitter and said optical signal receiver, and said data storing station storing said at least one set corresponding data.

7. The optical signal transmission system as claimed in claim 1, wherein each of said at least one optical signal transmitter and said at least one optical signal receiver previously stores said at least one set corresponding data.

8. The optical signal transmission system as claimed in claim 1, wherein said at least one optical signal receiver further includes :

a notifying unit for receiving a result of said verification from said at least one optical signal receiver, and for notifying whether said correct transmission route is verified between said main optical signal transmitted by said at least one optical signal transmitter and said

main optical signal received by said at least one optical signal receiver.

9. The optical signal transmission system as claimed in claim 1, further including a wavelength-multiplexed optical network having a plurality of wavelength-multiplexed optical signal transmission routes, through which said at least one wavelength-multiplexed optical signal is transmitted from said at least one optical signal transmitter to said at least one optical signal receiver.

10. The optical signal transmission system as claimed in claim 1, further including an optical switch having a plurality of selectable wavelength-multiplexed optical signal transmission routes, through which said at least one wavelength-multiplexed optical signal is transmitted from said at least one optical signal transmitter to said at least one optical signal receiver.

11. The optical signal transmission system as claimed in claim 1, wherein said at least one set corresponding data includes a relationship in correspondence between at least one wavelength of said at least one main optical signal and at least one reference electric frequency component of at least one frequency corresponding to said at least one main optical signal ;

wherein said at least one optical signal receiver detects at least one electric frequency component from said at least one optical identifier wavelength-demultiplexed ; and

wherein said at least one optical signal receiver verifies whether said correct transmission route is established based on said at least one electric frequency component with reference to said at least one reference electric frequency component included in said at least one set corresponding data.

12. The optical signal transmission system as claimed in claim 11, wherein each of said at least one optical signal transmitter further includes :

at least one set of a main optical signal generator for generating said at least one main optical signal, and an optical identifier generator for generating said at least one optical identifier and said at least one set corresponding data ; and

a multiplexer for wavelength-multiplexing said at least one main optical signal and said at least one optical identifier to generate said wavelength-multiplexed optical signal, and

wherein each of said at least one optical signal receiver further includes :

a demultiplexer for wavelength-demultiplexing said wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ;

at least one set of a main optical signal receiver for receiving said at least one main optical signal wavelength-demultiplexed ; and

an optical identifier receiver for receiving said at least one optical identifier and said at least one set corresponding data, and said optical identifier receiver further verifies whether said correct transmission route is established based on said at least optical identifier with reference to said at least one set corresponding data.

13. The optical signal transmission system as claimed in claim 12, wherein each of said at least one optical identifier generator further includes :

a frequency modulator for generating a frequency-modulated signal at a frequency corresponding to each of said at least one main optical signal ; and

an optical identifier generator for generating said at least one optical identifier frequency-modulated by said frequency-modulated signal, and

wherein each of said at least one optical identifier receiver further includes :

a photoelectric converter for performing a photoelectric conversion of each of said at least one optical identifier into an detected electrical signal ;

a frequency detector for detecting an electric frequency component from said detected electrical signal ; and

a frequency comparator for comparing said electric frequency component detected to said at least one reference electric frequency component included in said at least one set corresponding data.

14. The optical signal transmission system as claimed in claim 12, wherein each of said at least one optical signal transmitter further includes : plural sets of said main optical signal generators and said optical identifier generators, and

wherein each of said at least one optical signal receiver further includes : plural sets of said main optical signal receivers and said optical identifier receivers,

wherein said main optical signal generators respectively generate said main optical signals with wavelengths different from each other ;

wherein said optical identifier generators respectively generate said optical identifiers which belong to said main optical signals generated from said main optical signal generators, respectively, and said optical identifier generators further respectively generate plural sets of said corresponding data which respectively belong to said main optical signals generated from said main optical signal generators and said optical identifiers generated from said optical identifier generators ;

wherein said main optical signal receivers receive said main optical signals from respectively corresponding ones of said main optical signal generators ;

wherein said optical identifier receivers respectively receive said optical identifiers from respectively corresponding ones of said optical identifier generators, and said optical identifier receivers respectively receive said plural sets of said corresponding data from respectively corresponding ones of said optical identifier generators ; and

wherein each of said optical identifier receivers verifies whether said correct

transmission route is established based on each corresponding one of said optical identifiers with reference to each corresponding set of said corresponding data.

15. The optical signal transmission system as claimed in claim 1, wherein each of said at least one set corresponding data includes a relationship in correspondence between a first wavelength of said main optical signal and a second wavelength of said optical identifier uniquely belonging to said main optical signal, so that said second wavelength uniquely corresponds to said first wavelength ;

wherein said at least one optical signal receiver selectively detects said at least one optical identifier with said second wavelength ; and

wherein said at least one optical signal receiver verifies whether said correct transmission route is established based on said detected at least one optical identifier with reference to said at least one set corresponding data.

16. The optical signal transmission system as claimed in claim 15, wherein each of said at least one optical signal transmitter further includes :

at least one set of a main optical signal generator for generating said main optical signal with said first wavelength, and an optical identifier generator for generating said optical identifier with said second wavelength and for generating said at least one set corresponding data ; and

a multiplexer for wavelength-multiplexing said at least one main optical signal and said at least one optical identifier to generate said wavelength-multiplexed optical signal, and

wherein each of said at least one optical signal receiver further includes :

a demultiplexer for wavelength-demultiplexing said wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ;

at least one set of a main optical signal receiver for selectively receiving said at least

one main optical signal with said first wavelength, and an optical identifier receiver for selectively receiving said at least one optical identifier with said second wavelength, and wherein said optical identifier receiver further verifies whether said correct transmission route is established based on said at least optical identifier with reference to said at least one set corresponding data.

17. The optical signal transmission system as claimed in claim 16, wherein each of said at least one optical identifier generator further includes : an optical identifier generator for generating said optical identifier having said second wavelength, and

wherein each of said at least one main optical signal receiver further includes :

a first optical filter for selectively transmitting said main optical signal with said first wavelength ; and

a main optical signal receiver for receiving said main optical signal with said first wavelength transmitted through said first optical filter ;

wherein each of said at least one optical identifier receiver further includes :

a second optical filter for selectively transmitting said optical identifier with said second wavelength ; and

an optical identifier detector for detecting said optical identifier with said second wavelength transmitted through said second optical filter ; and for comparing said optical identifier having said second wavelength to said at least one set corresponding data.

18. The optical signal transmission system as claimed in claim 16, wherein each of said at least one optical signal transmitter further includes : plural sets of said main optical signal generators and said optical identifier generators,

wherein each of said at least one optical signal receiver further includes : said main optical signal receivers and said optical identifier receivers,

wherein said main optical signal generators respectively generate said main optical signals with wavelengths different from each other ;

wherein said optical identifier generators respectively generate said optical identifiers having wavelengths respectively correspond to said wavelengths of said main optical signals generated from said main optical signal generators, and said optical identifier generators further respectively generate plural sets of said corresponding data which respectively belong to said main optical signals generated from said main optical signal generators and said optical identifiers generated from said optical identifier generators ;

wherein said main optical signal receivers receive said main optical signals from respectively corresponding ones of said main optical signal generators ;

wherein said optical identifier receivers respectively receive said optical identifiers from respectively corresponding ones of said optical identifier generators, and said optical identifier receivers respectively receive said plural sets of said corresponding data from respectively corresponding ones of said optical identifier generators ; and

wherein each of said optical identifier receivers verifies whether said correct transmission route is established based on each corresponding one of said optical identifiers with reference to each corresponding set of said corresponding data.

19. The optical signal transmission system as claimed in claim 15, wherein each of said at least one optical signal transmitter further includes :

at least one set of a main optical signal generator for generating said main optical signal with said first wavelength, and an optical identifier generator for generating said optical identifier with said second wavelength and for generating said at least one set corresponding data ; and

a multiplexer for wavelength-multiplexing said at least one main optical signal and said at least one optical identifier to generate said wavelength-multiplexed optical signal, and

wherein each of said at least one optical signal receiver further includes :

an arrayed waveguide grating for wavelength-demultiplexing said wavelength-multiplexed optical signal to generate said at least one main optical signal with said first wavelength and said at least one optical identifier with said second wavelength ;

at least one set of a main optical signal receiver for selectively receiving said at least one main optical signal with said first wavelength, and an optical identifier receiver for selectively receiving said at least one optical identifier with said second wavelength, and wherein said optical identifier receiver further verifies whether said correct transmission route is established based on said at least optical identifier with reference to said at least one set corresponding data.

20. The optical signal transmission system as claimed in claim 19, wherein each of said at least one optical identifier generator further includes : an optical identifier generator for generating said optical identifier having said second wavelength, and

wherein each of said at least one main optical signal receiver further includes :

a main optical signal receiver for receiving said main optical signal with said first wavelength transmitted through said arrayed waveguide grating ;

wherein each of said at least one optical identifier receiver further includes :

an optical identifier detector for detecting said optical identifier with said second wavelength transmitted through said arrayed waveguide grating ; and for comparing said optical identifier having said second wavelength to said at least one set corresponding data.

21. An optical signal transmitter including :

a first transmitter function block for generates at least one optical identifier belonging to and being different in wavelength from at least one main optical signal ; and

a second transmitter function block for performing a wavelength-multiplexing of said at least one main optical signal and said at least one optical identifier to transmit at least one wavelength-multiplexed optical signal.

22. The optical signal transmitter as claimed in claim 21, wherein said first transmitter function block further generates at least one set corresponding data, which include a first relationship in correspondence between said at least one main optical signal and said at least one optical identifier.

23. The optical signal transmitter as claimed in claim 22, wherein said second transmitter function block sends said at least one set corresponding data to a memory, so that said memory stores said at least one set corresponding data.

24. The optical signal transmitter as claimed in claim 22, wherein said second transmitter function block sends said at least one set corresponding data to a data storing station, so that said data storing station stores said at least one set corresponding data.

25. The optical signal transmitter as claimed in claim 21, wherein said first transmitter function block previously stores said at least one set corresponding data.

26. The optical signal transmitter as claimed in claim 21, wherein said second transmitter function block transmits said at least one wavelength-multiplexed optical signal through a wavelength-multiplexed optical network having a plurality of wavelength-multiplexed optical signal transmission routes.

27. The optical signal transmitter as claimed in claim 21, wherein said second transmitter function block transmits said at least one wavelength-multiplexed optical signal through an optical switch having a plurality of selectable wavelength-multiplexed optical signal transmission routes.

28. The optical signal transmitter as claimed in claim 21, wherein said at least one set corresponding data includes a relationship in correspondence between at least one wavelength of said at least one main optical signal and at least one reference electric frequency component of at least one frequency corresponding to said at least one main optical signal.

29. The optical signal transmitter as claimed in claim 28, wherein said first transmitter function block further includes :

at least one set of a main optical signal generator for generating said at least one main optical signal, and an optical identifier generator for generating said at least one optical identifier and said at least one set corresponding data ; and

wherein said second transmitter function block further includes :

a multiplexer for wavelength-multiplexing said at least one main optical signal and said at least one optical identifier to generate said wavelength-multiplexed optical signal.

30. The optical signal transmitter as claimed in claim 29, wherein said at least one optical identifier generator further includes :

a frequency modulator for generating a frequency-modulated signal at a frequency corresponding to each of said at least one main optical signal ; and

an optical identifier generator for generating said at least one optical identifier frequency-modulated by said frequency-modulated signal.

31. The optical signal transmitter as claimed in claim 29, wherein said first transmitter function block further includes : plural sets of said main optical signal generators and said optical identifier generators,

wherein said main optical signal generators respectively generate said main optical signals with wavelengths different from each other ; and

wherein said optical identifier generators respectively generate said optical identifiers which belong to said main optical signals generated from said main optical signal generators, respectively, and said optical identifier generators further respectively generate plural sets of said corresponding data which respectively belong to said main optical signals generated from said main optical signal generators and said optical identifiers generated from said optical identifier generators.

32. The optical signal transmitter as claimed in claim 21, wherein each of said at least one set corresponding data includes a relationship in correspondence between a first wavelength of said main optical signal and a second wavelength of said optical identifier uniquely belonging to said main optical signal, so that said second wavelength uniquely corresponds to said first wavelength.

33. The optical signal transmitter as claimed in claim 32, wherein said first transmitter function block further includes :

at least one set of a main optical signal generator for generating said main optical signal with said first wavelength, and an optical identifier generator for generating said optical identifier with said second wavelength and for generating said at least one set corresponding data ; and

wherein said second transmitter function block further includes :

a multiplexer for wavelength-multiplexing said at least one main optical signal and said at least one optical identifier to generate said wavelength-multiplexed optical signal.

34. The optical signal transmitter as claimed in claim 33, wherein each of said at least one optical identifier generator further includes : an optical identifier generator for generating said optical identifier having said second wavelength.

35. The optical signal transmitter as claimed in claim 33, wherein said first transmitter function block further includes :

plural sets of said main optical signal generators and said optical identifier generators, wherein said main optical signal generators respectively generate said main optical signals with wavelengths different from each other ; and

wherein said optical identifier generators respectively generate said optical identifiers having wavelengths respectively correspond to said wavelengths of said main optical signals generated from said main optical signal generators, and said optical identifier generators further respectively generate plural sets of said corresponding data which respectively belong to said main optical signals generated from said main optical signal generators and said optical identifiers generated from said optical identifier generators.

36. The optical signal transmitter as claimed in claim 32, wherein said first transmitter function block further includes :

at least one set of a main optical signal generator for generating said main optical signal with said first wavelength, and an optical identifier generator for generating said optical identifier with said second wavelength and for generating said at least one set corresponding data ; and

wherein said second transmitter function block further includes :

a multiplexer for wavelength-multiplexing said at least one main optical signal and said at least one optical identifier to generate said wavelength-multiplexed optical signal.

37. The optical signal transmitter as claimed in claim 36, wherein each of said at least one optical identifier generator further includes : an optical identifier generator for generating said optical identifier having said second wavelength.

38. An optical signal receiver including :

a first receiver function block for performing a wavelength-demultiplexing of at least one wavelength-multiplexed optical signal to generate at least one main optical signal and at least one optical identifier ; and

a second receiver function block for verifying whether or not a correct transmission route is established, based on said at least optical identifier with reference to at least one set corresponding data, which include a first relationship in correspondence between said at least one main optical signal and said at least one optical identifier.

39. The optical signal receiver as claimed in claim 38, wherein said second receiver function performs said verification by comparing said first relationship included in said at least one set corresponding data to a second relationship between said at least one main optical signal received by said at least one optical signal receiver and said at least one optical identifier detected by said at least one optical signal receiver.

40. The optical signal receiver as claimed in claim 38, wherein said second receiver function block performs said verification without subjecting said at least one main optical signal to any photoelectric conversion, and independently from any transmission rate and any format of said at least one main optical signal.

41. The optical signal receiver as claimed in claim 38, wherein said second receiver function block receives said at least one set corresponding data stored in a memory.

42. The optical signal receiver as claimed in claim 38, wherein said second receiver function block receives said at least one set corresponding data stored in a data storing station.

43. The optical signal receiver as claimed in claim 38, wherein said second receiver function block previously stores said at least one set corresponding data.

44. The optical signal receiver as claimed in claim 38, further including :

a notifying unit for receiving a result of said verification from said at least one optical signal receiver, and for notifying whether said correct transmission route is verified between said main optical signal transmitted and said main optical signal received by said at least one optical signal receiver.

45. The optical signal receiver as claimed in claim 38, wherein said first receiver function block receives said at least one wavelength-multiplexed optical signal transmitted from a wavelength-multiplexed optical network having a plurality of wavelength-multiplexed optical signal transmission routes.

46. The optical signal receiver as claimed in claim 38, wherein said first receiver function block receives said at least one wavelength-multiplexed optical signal transmitted from an optical switch having a plurality of selectable wavelength-multiplexed optical signal transmission routes.

47. The optical signal receiver as claimed in claim 38, wherein said at least one set corresponding data includes a relationship in correspondence between at least one wavelength of said at least one main optical signal and at least one reference electric frequency component of at least one frequency corresponding to said at least one main optical signal ;

wherein said second receiver function block detects at least one electric frequency component from said at least one optical identifier wavelength-demultiplexed ; and

wherein said second receiver function block verifies whether said correct transmission route is established based on said at least one electric frequency component with reference to said at least one reference electric frequency component included in said at least one set corresponding data.

48. The optical signal receiver as claimed in claim 47, wherein said first receiver function block further includes :

a demultiplexer for wavelength-demultiplexing said wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ; and

at least one set of a main optical signal receiver for receiving said at least one main optical signal wavelength-demultiplexed ; and

wherein said second receiver function block further includes :

an optical identifier receiver for receiving said at least one optical identifier and said at least one set corresponding data, and said optical identifier receiver further verifies whether said correct transmission route is established based on said at least optical identifier with reference to said at least one set corresponding data.

49. The optical signal receiver as claimed in claim 48, wherein each of said at least one

optical identifier receiver further includes :

a photoelectric converter for performing a photoelectric conversion of each of said at least one optical identifier into an detected electrical signal ;

a frequency detector for detecting an electric frequency component from said detected electrical signal ; and

a frequency comparator for comparing said electric frequency component detected to said at least one reference electric frequency component included in said at least one set corresponding data.

50. The optical signal receiver as claimed in claim 48, wherein said optical signal receiver further includes : plural sets of said main optical signal receivers and said optical identifier receivers,

wherein said main optical signal receivers receive said main optical signals from respectively corresponding ones of said main optical signal generators ;

wherein said optical identifier receivers respectively receive said optical identifiers from respectively corresponding ones of said optical identifier generators, and said optical identifier receivers respectively receive said plural sets of said corresponding data from respectively corresponding ones of said optical identifier generators ; and

wherein each of said optical identifier receivers verifies whether said correct transmission route is established based on each corresponding one of said optical identifiers with reference to each corresponding set of said corresponding data.

51. The optical signal receiver as claimed in claim 38, wherein each of said at least one set corresponding data includes a relationship in correspondence between a first wavelength of said main optical signal and a second wavelength of said optical identifier uniquely belonging to said main optical signal, so that said second wavelength uniquely corresponds to

said first wavelength ;

wherein said second receiver function block selectively detects said at least one optical identifier with said second wavelength ; and

wherein said second receiver function block verifies whether said correct transmission route is established based on said detected at least one optical identifier with reference to said at least one set corresponding data.

52. The optical signal receiver as claimed in claim 51, wherein said first receiver function block further includes :

a demultiplexer for wavelength-demultiplexing said wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ; and

wherein said second receiver function block further includes :

at least one set of a main optical signal receiver for selectively receiving said at least one main optical signal with said first wavelength, and an optical identifier receiver for selectively receiving said at least one optical identifier with said second wavelength, and wherein said optical identifier receiver further verifies whether said correct transmission route is established based on said at least optical identifier with reference to said at least one set corresponding data.

53. The optical signal receiver as claimed in claim 52, wherein each of said at least one main optical signal receiver further includes :

a first optical filter for selectively transmitting said main optical signal with said first wavelength ; and

a main optical signal receiver for receiving said main optical signal with said first wavelength transmitted through said first optical filter ;

wherein each of said at least one optical identifier receiver further includes :

a second optical filter for selectively transmitting said optical identifier with said second wavelength ; and

an optical identifier detector for detecting said optical identifier with said second wavelength transmitted through said second optical filter ; and for comparing said optical identifier having said second wavelength to said at least one set corresponding data.

54. The optical signal receiver as claimed in claim 52, wherein said first receiver function block further includes said main optical signal receivers and said second receiver function block further includes said optical identifier receivers,

wherein said main optical signal receivers receive said main optical signals from respectively corresponding ones of said main optical signal generators ;

wherein said optical identifier receivers respectively receive said optical identifiers from respectively corresponding ones of said optical identifier generators, and said optical identifier receivers respectively receive said plural sets of said corresponding data from respectively corresponding ones of said optical identifier generators ; and

wherein each of said optical identifier receivers verifies whether said correct transmission route is established based on each corresponding one of said optical identifiers with reference to each corresponding set of said corresponding data.

55. The optical signal receiver as claimed in claim 51, wherein said first receiver function block further includes :

an arrayed waveguide grating for wavelength-demultiplexing said wavelength-multiplexed optical signal to generate said at least one main optical signal with said first wavelength and said at least one optical identifier with said second wavelength ; and

at least one main optical signal receiver for selectively receiving said at least one main

optical signal with said first wavelength ; and

wherein said second receiver function block further includes :

an optical identifier receiver for selectively receiving said at least one optical identifier with said second wavelength, and wherein said optical identifier receiver further verifies whether said correct transmission route is established based on said at least optical identifier with reference to said at least one set corresponding data.

56. The optical signal receiver as claimed in claim 55, wherein each of said at least one main optical signal receiver further includes :

a main optical signal receiver for receiving said main optical signal with said first wavelength transmitted through said arrayed waveguide grating ; and

wherein each of said at least one optical identifier receiver further includes :

an optical identifier detector for detecting said optical identifier with said second wavelength transmitted through said arrayed waveguide grating ; and for comparing said optical identifier having said second wavelength to said at least one set corresponding data.

57. A method of monitoring establishment of a correct transmission route between at least one optical signal transmitter and at least one optical signal receiver, said method including :

generating at least one optical identifier belonging to and being different in wavelength from at least one main optical signal ;

performing a wavelength-multiplexing of said at least one main optical signal and said at least one optical identifier to transmit at least one wavelength-multiplexed optical signal to said at least one optical signal receiver ;

performing a wavelength-demultiplexing of said at least one wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ; and

verifying whether or not a correct transmission route is established, based on said at least optical identifier with reference to at least one set corresponding data, which include a first relationship in correspondence between said at least one main optical signal and said at least one optical identifier.

58. The method as claimed in claim 57, wherein said verification is made by comparing said first relationship included in said at least one set corresponding data to a second relationship between said at least one main optical signal received by said at least one optical signal receiver and said at least one optical identifier detected by said at least one optical signal receiver.

59. The method as claimed in claim 57, wherein said verification is made without subjecting said at least one main optical signal to any photoelectric conversion, and independently from any transmission rate and any format of said at least one main optical signal.

60. The method as claimed in claim 57, further including :

sending said at least one set corresponding data from said at least one optical signal transmitter to said at least one optical signal receiver.

61. The method as claimed in claim 60, further including :

storing said at least one set corresponding data in a memory being coupled to said optical signal transmitter and said optical signal receiver.

62. The method as claimed in claim 60, further including :

storing said at least one set corresponding data in a data storing station being coupled

to said optical signal transmitter and said optical signal receiver.

63. The method as claimed in claim 57, further including :

previously storing said at least one set corresponding data in each of said at least one optical signal transmitter and said at least one optical signal receiver.

64. The method as claimed in claim 57, further including :

notifying whether said correct transmission route is verified between said main optical signal transmitted by said at least one optical signal transmitter and said main optical signal received by said at least one optical signal receiver.

65. The method as claimed in claim 57, further including :

transmitting said at least one wavelength-multiplexed optical signal from said at least one optical signal transmitter to said at least one optical signal receiver through a wavelength-multiplexed optical network having a plurality of wavelength-multiplexed optical signal transmission routes.

66. The method as claimed in claim 57, further including :

transmitting said at least one wavelength-multiplexed optical signal from said at least one optical signal transmitter to said at least one optical signal receiver through an optical switch having a plurality of selectable wavelength-multiplexed optical signal transmission routes.

67. The method as claimed in claim 57, wherein said at least one set corresponding data includes a relationship in correspondence between at least one wavelength of said at least one main optical signal and at least one reference electric frequency component of at least one

frequency corresponding to said at least one main optical signal ; and

wherein said method further includes :

detecting at least one electric frequency component from said at least one optical identifier wavelength-demultiplexed ; and

verifying whether said correct transmission route is established based on said at least one electric frequency component with reference to said at least one reference electric frequency component included in said at least one set corresponding data.

68. The method as claimed in claim 67, further including :

generating a frequency-modulated signal at a frequency corresponding to each of said at least one main optical signal ; and

generating said at least one optical identifier frequency-modulated by said frequency-modulated signal ;

performing a photoelectric conversion of each of said at least one optical identifier into an detected electrical signal ;

detecting an electric frequency component from said detected electrical signal ; and

comparing said electric frequency component detected to said at least one reference electric frequency component included in said at least one set corresponding data.

69. The method as claimed in claim 57, wherein each of said at least one set corresponding data includes a relationship in correspondence between a first wavelength of said main optical signal and a second wavelength of said optical identifier uniquely belonging to said main optical signal, so that said second wavelength uniquely corresponds to said first wavelength ; and

wherein said method further includes :

selectively detecting said at least one optical identifier with said second wavelength ; and

verifies whether said correct transmission route is established based on said detected at least one optical identifier with reference to said at least one set corresponding data.

70. The method as claimed in claim 69, further including :

generating said optical identifier having said second wavelength ;

selectively transmitting said main optical signal with said first wavelength ;

selectively transmitting said optical identifier with said second wavelength ;

detecting said optical identifier with said second wavelength transmitted through said second optical filter ; and

comparing said optical identifier having said second wavelength to said at least one set corresponding data.

71. A method of transmitting an optical signal, including :

generating at least one optical identifier belonging to and being different in wavelength from at least one main optical signal ; and

performing a wavelength-multiplexing of said at least one main optical signal and said at least one optical identifier to transmit at least one wavelength-multiplexed optical signal to said at least one optical signal receiver.

72. A method of receiving an optical signal transmitted, including :

performing a wavelength-demultiplexing of said at least one wavelength-multiplexed optical signal to generate said at least one main optical signal and said at least one optical identifier ; and

verifying whether or not a correct transmission route is established, based on said at

least optical identifier with reference to at least one set corresponding data, which include a first relationship in correspondence between said at least one main optical signal and said at least one optical identifier.

73. The method as claimed in claim 72, wherein said verification is made by comparing said first relationship included in said at least one set corresponding data to a second relationship between said at least one main optical signal received by said at least one optical signal receiver and said at least one optical identifier detected by said at least one optical signal receiver.

74. The method as claimed in claim 72, wherein said verification is made without subjecting said at least one main optical signal to any photoelectric conversion, and independently from any transmission rate and any format of said at least one main optical signal.